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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Gaetano Lo Presti

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EXAMINER

BELL, WILLIAM P

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,303	Applicant(s) LO PRESTI ET AL.	
	Examiner WILLIAM P. BELL	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-70 is/are pending in the application.
- 4a) Of the above claim(s) 44-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 36-43, 69 and 70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 36-43, 69, and 70 in the reply filed on 3 December 2009 is acknowledged.
2. Claims 48-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3 December 2009.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 36, 37, and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori (U.S. Patent Application Publication No. US 2003/0122284).
Regarding claim 36, Mori teaches an expandable bladder for tire-vulcanizing apparatuses (see [0002] and [0005]), having a toroidal conformation (see bladder 10 in Figure 2), comprising at least one first layer of a first elastomer material (see [0033]-[0034] and [0053]) and one second layer of a second elastomer material different from the first elastomer material (see [0033]-[0034] and [0053]); wherein the second layer is

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at a position radially external to the first layer (see Figure 2, wherein the toroidal conformation of the bladder requires that one layer is radially external to the other); wherein the first and second layers have an undulated interface profile and wherein the interface profile defined mechanical engagement elements between the first and second elastomer materials (see [0034] and [0059]; see Figure 1; because the different elastomer materials taught by Mori would be placed on opposite sides of the knitted fabric shown in Figure 1 and then made integral to the fabric, the elastomer materials flow into the spaces between the stitches of the fabric and form an interface which is significantly affected by the presences of the fibers in the fabric; this interface would of necessity be undulated because the elastomer materials must flow around the fibers and therefore mechanically engage with the fibers and with each other).

Regarding claim 37, Mori teaches a bladder comprising at least one circumferential edge carrying anchoring tailpieces (see Figure 2, wherein the edges of bladder 10 serve as anchoring tailpieces which are clamped to the structure associated with the core of the mold).

Regarding claim 41, Mori teaches a bladder wherein a third layer of elastomer material cross-linked with at least the first elastomer material is disposed at a position radially internal the first layer (see [0033], wherein Mori teaches a bladder comprising four or more layers; see [0059], wherein cross-linking of the elastomer materials is taught).

Regarding claim 42, Mori teaches a bladder wherein a fourth layer of elastomer material cross-linked with at least one of the first and second elastomer materials is

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disposed at a position radially external to the second layer (see [0033], wherein Mori teaches a bladder comprising four or more layers; see [0059], wherein cross-linking of the elastomer materials is taught).

Regarding claim 43, Mori teaches a bladder wherein layers of elastomer material are placed on opposite sides of a knitted fabric. Mori also teaches that the layers may include, among other materials, butyl rubber and silicone rubber, singly or in combination (see [0053]). Therefore Mori anticipates the combination of butyl and silicone rubbers in either radial configuration.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori as applied to claim 36 above. Mori does not explicitly disclose the exact structure of the interface which is formed when the elastomer materials flow through the fibers of the knitted fabric. However, Mori teaches a range of fabric structures with different spacing of the fibers (see [0040]), as well as different thicknesses of the bladder (see [0033]). Since the spacing of the fibers has a direct effect on the shape of the interface profile between the two elastomer materials, Mori's teaching suggest or render obvious the recited pitch and wave heights of that profile.

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5. Claims 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori in view of Cantarutti (U.S. Patent No. 3,464,090), and further in view of Heindel (U.S. Patent No. 5,939,002). Regarding claim 69, Mori teaches a vulcanization apparatus for tires of vehicle wheels (see [0005] and Figure 2) comprising a mold (see [0005] and Figure 2); devices to supply heat to a green tire to be vulcanized to enable cross-linking of the latter, said devices being operative associated with the mold (see [0005]); and an expandable bladder operative associated with the mold to exert pressure from the inside to the outside on the green tire, bringing the green tire into contact with the mold during the molding step (see [0005]), wherein the expandable bladder has a toroidal conformation (see Figure 2) and comprises at least one first layer of a first elastomer material (see [0033]-[0034] and [0053]) and one second layer of a second elastomer material different from the first elastomer material (see [0033]-[0034] and [0053]); wherein the second layer is at a position radially external to the first layer (see Figure 2, wherein the toroidal conformation of the bladder requires that one layer is radially external to the other); wherein the first and second layers have an undulated interface profile and wherein the interface profile defined mechanical engagement elements between the first and second elastomer materials (see [0034] and [0059]; see Figure 1; because the different elastomer materials taught by Mori would be placed on opposite sides of the knitted fabric shown in Figure 1 and then made integral to the fabric, the elastomer materials flow into the spaces between the stitches of the fabric and form an interface which is significantly affected by the presences of the fibers in the fabric; this interface would of necessity be undulated because the elastomer materials

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must flow around the fibers and therefore mechanically engage with the fibers and with each other). Mori does not teach that the mold has a plurality of cheeks and sectors adapted to define by molding a tread pattern on the tread band and a plurality of graphic marks on the sidewalls of the tire when the bladder pressure the green tire against the mold. Cantarutti teaches a mold using a bladder and comprising radially moving sectors which form the tread of the tire as well as sidewall molding surfaces (see column 1, lines 53-56 and Figures 1 and 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the apparatus taught by Mori with the configuration taught by Cantarutti for the benefit of improving the stripping of the tire from the mold after vulcanization (see Cantarutti, column 1, lines 48-57). While Cantarutti does not teach that the sidewall molding surfaces form a plurality of graphic elements on the sidewall of the tire, such is well known in the art, as exemplified by Heindel (see Figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the sidewall molding surfaces with graphic element forming surfaces for the benefit of providing commonly used indicia such as corporate logos and other tire identification information.

Regarding claim 70, Mori teaches a bladder comprising at least one circumferential edge carrying anchoring tailpieces (see Figure 2, wherein the edges of bladder 10 serve as anchoring tailpieces which are clamped to the structure associated with the core of the mold).

6. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (Japan Patent Publication No. JP-05031724, already of record) in view of

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Masuda (Japan Patent Publication No. JP-03202326). Hashimoto teaches an expandable bladder for tire vulcanizing apparatuses (see [0001]) having a toroidal conformation (one of skill in the art recognizes that such bladders are toroidal in shape), comprising at least one first layer of a first elastomer material and one second layer of a second elastomer material different from the first elastomer material (see [0007]); wherein the second layer is at a position radially external to the first layer (see [0007]). Hashimoto teaches that the inner layer is preferably butyl rubber (see [0009]) and the outer layer is preferably silicone rubber (see [0011]). Hashimoto does not teach that the interface profile between the two elastomer materials is undulated and defines mechanical engagement elements. Masuda teaches a bladder for tire vulcanizing wherein a layer of silicone-based cross-linked material is applied to the outer surface of the bladder after the surface of the bladder has been made uneven (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto by providing the inner layer with an uneven surface for the benefit of improving the adhesion and endurance of the silicone rubber layer to the butyl rubber layer. The uneven surface taught by Masuda can be reasonably interpreted as being undulated since it consists of alternating high and low points.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hashimoto and Masuda as applied to claim 36 above, and further in view of Schallmeier (U.S. Patent No. 4,698,245) and Faure-Bondat (European Patent Application Publication No. EP-0209453). Hashimoto, as modified by Masuda, teaches

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providing an uneven surface between the layers of a bladder, but does not teach providing portions of mutual undercut constraint. Schallmeier teaches that layers of different rubber materials often do not have the necessary adhesion to one another for durability (see column 1, lines 23-26), and discloses the formation of a regular undulated surface between rubbers layers to enhance that adhesion (see column 1, lines 40-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto and Masuda with the regular undulating interface taught by Schallmeier for the benefit of improving the adhesion of the layers via a position connection (see Schallmeier, column 1, lines 47-58). Faure-Bondat teaches that incompatible rubber materials may be joined by a coextrusion process in which mutual undercuts are formed between the incompatible materials (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the bladder taught by Hashimoto, Masuda, and Schallmeier by forming undercuts between the layers using a coextrusion process for the benefit of ensuring adhesion between incompatible rubber materials (see Faure-Bondat, Abstract).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Burdette (U.S. Patent No. 1,603,312), Iknayan (U.S. Patent No. 2,198,008), Weimer (U.S. Patent No. 5,250,142), and Irie (Japan Patent Publication No. JP-2003011127) each teach bladders which read on the claimed invention.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM P. BELL whose telephone number is (571)270-7067. The examiner can normally be reached on Monday - Thursday, 8:00 am - 5:30 pm; Alternating Fridays, 8:00 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/WILLIAM P BELL/
Examiner, Art Unit 1791

/Richard Crispino/
Supervisory Patent Examiner, Art Unit 1791

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